On a New Species of Chloromyxum from the Gall-bladder of the Carp.

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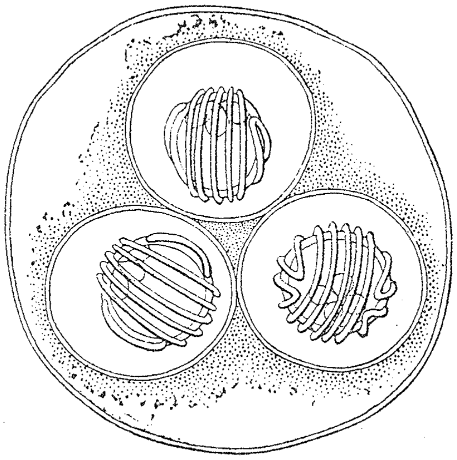
In view of the fact that Myxosporidian parasite has never yet been reported from the gall-bladder of the common carp, I deem it worth while to give the following account of an apparently new *Chloromyxum* species, which I have discovered in the said organ of that fish. The species I propose to call *C. koi*, from the Japanese name of the host.

During May, 1912. there came under my observation that, of the numerous carps obtained in Sapporo, Hokkaido, and examined by me, many were peculiarly pathologically affected. These showed gall-bladder of an unusually reddish colouration, due to the contents being of that colour; moreover, it was generally found to be much distended, while the wall was changed into so delicate a texture that it easily burst on application of a slight pressure. The peritoneal membrane in the neighbourhood of the organ so affected frequently presented a somewhat greenish yellow hue, evidently as the result of exudation of the bile. In certain cases a similar colouration was also observable in the external skin of the dorsal body-parts and sometimes even in the iris of the eyes. Now examining the gall-badder of the fish presenting more or less the above icteric symptom, I have always been able to discover peculiar Myxosporidian sporoblasts and spores floating in the contents. I have found that nearly 10% of the carps that were brought to me were infested by the parasite. The characters of the spores indicate that we have here to do with a

Chloromyxum, which however differs in structural details from any hitherto known species of that genus.



A sporoblast of *Chloromyxum koi* containing three spores. Greatly magnified.

The sporoblasts in question are colourless, transparent, and of an approximately spherical shape, up to 50 μ in greatest diametre (see the accompanying figure). They contain 1—3 spores, each situated in a clear space surrounded by a membranous envelope, around which there is some finely granular matter. The spores, found either in the sporoblasts or free in the fluid contents of the gall-bladder, are nearly spherical but not quite, exhibiting, as they do, a somewhat angular contour at the anterior pole. So that, the antero-posterior diametre is always a little prolonged over the transverse. The two diametres in most cases measure 16 μ and 10 μ respectively. The shell of the spore is rather thick and is characterized by showing a number of peculiarly arranged, low and narrow but well marked ridges on the external surface. There exist in the first place, four or five circular ridges which completely encircle the spore: they run nearly parallel with one another and together occupy a broad zone that pass over the anterior and posterior poles. In the next place, there are, in each of the two lateral areas on both sides of the median circular zone just indicated, four more ridges running meridionally and which, if prolonged at their either end, would strike the first mentioned circular ridges at some angles. As a matter of fact, however the four lateral ridges form two pairs lying side by side, in each of which the two ridges are joined together at both their ends and thus form a loop at each end before reaching the median zone. So that, when a spore is viewed from the side of its either pole, there are to be seen in the middle parts four or five ridges running across in nearly parallel lines and on both sides of these two more ridges each bent in a loop-like manner. In equatorial optical section, the spore presents an outline very much like that of a toothed wheel with nearly equidistant teeth, i.e. the ridges in optical section, either sixteen or eighteen in number.

Each spore contains four polar capsules as in all other members of *Chloromyxum*. They are situated in the slightly pointed anterior pole. Two of them are somewhat larger than the rest, attaining a diametre of about 4 μ. By application of a stimulating reagent, the capsules can be easily made to throw out the filament. This may be 64 μ long.

To my knowledge, there have hitherto been known in all ten species of *Chloromyxum*. Of all these, *C. cristatum* Léger (from the gall-bladder of *Tinca vulgaris*) seems to be most nearly related to the present species, inasmuch as it possesses a number of similar meridionally disposed ridges on the exterior of spores. But these ridges differ markedly in their number and mode of arrangement from the same of *C. koi*. Moreover, both the sporoblasts and spores of the latter seem to be considerably larger, the spores of *C. cristatum* being known to be not more than 10—11 mm. in longest diametre.